MOLLUSCA FROM WESTERN AUSTRALIA

By BERNARD C. COTTON, Conchologist, South Australian Museum.

During a recent visit to Western Australia, opportunity was taken to explore the beaches of that interesting region. A representative collection of Mollusca was obtained then and further specimens have been collected and forwarded to the South Australian Museum by enthusiastic students at the University of Western Australia.

A few brief notes on some Western Australian species are submitted.

Saxostrea australis (Lamarck).

Ostrea australis Lamarck 1819. An. S. Vert., 6, p. 209.

This species was originally described from King George Sound. It is living on the reefs at Cottesloe and we have it from Albany, Fremantle and Garden Island. Specimens in the South Australian Museum Collections were labelled "*O. mordax* Saville-Kent" which is a Queensland species, "*O. glomerata* Gould" a New Zealand oyster and "*O. cucullata* Born", a West Indian shell. In South Australia living specimens have been taken at Corny Point, Coffins Bay, and dredged in shallow water off St. Francis Island. It has long been suspected that two oysters, the common "Port Lincoln" Mud-oyster and a second rarer "rock oyster" allied to the "Sydney Rock Oyster" occur in South Australia, and this theory has proved correct.

S. australis is more circular and flatter than the Peronian *S. commercialis* Iredale, though it has a sinuated turned up edge and bluish interior usually associated with *Saxostrea*. *Saxostrea scyphophilla* Peron 1807 recently recognized from Sharks Bay is quite distinct, as specimens of that species about 35 mm. in diameter are produced into the distinctive tubular form about 70 mm. in length. A few specimens of *S. australis* taken alive at Cottesloe up to 50 mm. in diameter are of the usual flat, oyster shape.

S. australis has not yet been found in Eastern South Australia. Confusing evidence of the existence of a rock oyster in South Australia has been accentuated in the past by frequent finds of discarded "Sydney Rock" shells on the beaches in the vicinity of Outer Harbour.

SAXOSTREA SCYPHOPHILLA (Peron)

Ostrea scyphophilla Peron 1807. Voy. Decouv. Terres. Austr, 1, p. 119:

Mr. Edgar Mundy, of Port Lincoln, has large and typical specimens of this species taken at "Franklin Harbour, Cowell, in creek, left hand side, just in the entrance, 1910." Mr. Mundy writes that the "Mangrove Oyster" was plentiful in those days at Cowell, Shoal Water Point and Port Augusta. A specimen sent to F. L. Saunders, of Adelaide, from the original series, measures 80 mm. in length and the aperture of the "horn" is 40 mm. The shell has a dark violet colouration externally and on the inner margin, somewhat like that of *S. australis.*

PROXICHIONE LAQUEATA (Sowerby).

Venus laqueata Sowerby 1853. Thes., Conch., 2, p. 706, p. 153, fig. 15.

This big cockle was described from Swan River, Western Australia, and we have specimens from Garden Island and Cossack. The species is a little variable in shape and sculpture but it is consistently smaller and differently shaped from the "Mother Cockle" *Proxichione materna* Iredale of New South Wales. J. T. Veitch took a living specimen of *P. laqueata* measuring 70 mm. in length and 65 mm. in height at Spalding Bay, Port Lincoln. It is dark fawn coloured with a couple of dark-brownish-red radials. In sculpture and colouration the specimen somewhat resembles *Venus puerpera* Linne 1771 found in the Philippines and Queensland. This is the only specimen I have seen from South Australia, dead or alive, and it constitutes a new record for the State. An ancestor of this species, *P. cognata* Pritchard occurs in the "Adelaidean" Lower Pliocene, and a similar species has been noticed recently in what may be "Werrikooian" Upper Pliocene material from Kangaroo Island. Another relative is *P. dimorphylla* Tate from the Middle and Upper Miocene of South Australia.

Superfamily CYPRAEACEA.

Hedley in his "Preliminary Index of the Mollusca of Western Australia" 1916 listed forty species, but about seventy species occur in Western Australia. E. H. Bardwell forwarded to me a list of North Western Australian cowries collected by B. E. Bardwell. The following were not on my manuscript list from that region, but can be added now on Bardwell's authority, his identification being followed by the name used in modern lists.

Ovulum ovum Linne. *Amphiperas ovum* Linne. Brue Reef.
Cypraea staphylaea Linne. *Staphylaea staphylaea* Linne. Gantheaume Point.
Cypraea angustata Linne. *Notocypraea vercanis* Cotton and Godfrey. Abrolhos Islands.
Cypraea asellus Linne. *Evenaria asellus* Linne. N.W.A.
Cypraea notata Gill. Maybe *Paulonaria macula hilda* Iredale. Roebuck Bay.
Cypraea quadrimaculata Gray. *Bistolida quadrimaculata* Gray. Roebuck Bay.
Cypraea talpa Linne. *Talparia talpa* Linne. Fort George.
Cypraea variolaria Lamarck. *Ovatipsa chinensis variolaria* Lamarck. N.W.A.
Cypraea eburnea Barnes. *Albacypraea eburnea* Barnes. Anson Bay.

Among Cowries collected by R. W. Tymms at Broome was a specimen of *Bistolida stolida*, which was also listed from Roebuck Bay by Bardwell.

ZOILA VERCOI (Schilder).

Zoila vercoi Schilder 1930. Zool. Anz., Bd. 92., p. 74.

The holotype D.969 is in the South Australian Museum and there are two paratypes, all from Esperance. Three specimens of this so-called "Esperance Cowry" were noted in the collection of H. Rossell, Subiaco. One of these he donated to this Museum. All specimens are quite distinct from *Zoila friendii* Gray originally taken at "Swan River."

ZOILA ROSSELLI (Cotton).

Zoila rosselli Cotton 1948. Trans. Roy. Soc. S. Aust., Vol. 72, pt. 1, p. 30, pl. 1, fig. 1–6.

Zoila marginata Gaskoin 1848, unfigured and from unknown locality, was thought by Iredale to be an immature *Z. friendii* and Schilder placed it as a separate species following *Z. friendii* in his great work "Living Cypraeidae". *Z. marginata* may be a deep water relative of *Z. rosselli* though it is difficult to decide until the unique specimen in the British Museum is compared. *Z. marginata* is described as a pellucid shell, having brown dorsal spots, sides and base white, teeth produced, spire greatly produced. *Z. rosselli* is rather thick, margins and extremities calloused, dorsum unicoloured light brown, medium-brown base and margins, teeth slightly produced, spire not produced.

GUTTACYPRAEA PULICARIA (Reeve).

Cypraea pulicaria Reeve 1846. Conch. Icon. 3, pl. 17, fig. 84, sp. 84.

A good series of this species taken by H. Rossell at Leighton, South Western Australia, shows little variation. Its deep pink colouring, four bands, brown maculations and spotted margins distinguish this littoral species from the deep water *G. euclia* Steadman and Cotton 1946. *G. pulcaria* we also have from Point Peron.

RAVITRONA CAPUTSERPENTIS (Linne).

Cypraea caputserpentis Linne 1758. Syst. Nat. ed. 10, p. 720.

The type came from Mauritius. *Cypraea caputserpentis kenyonae* Schilder and Schilder 1939, from Western Australia differs from *R. caputserpentis* in being oval in shape, sides not thickened or angulated, dorsum not flattened or depressed, dark brown, base cream.

A good series of this species from Leighton, Cottesloe and Rottnest suggests that the name *R. kenyonae* may be based on a juvenile shell as senile specimens show every characteristic of the true *R. caputserpentis*. Three varieties separated by collectors and forwarded for identification were merely series of juvenile, mature and senile specimens respectively.

RAVITRONA HELVOLA (Linne).

Cypraea helvola Linne 1758. Syst. Nat. ed. 10, p. 720.

The Western Australian variant has a tendency to coarser teeth and a greenish tinge in the colouration. A series of eight from Cottesloe and Rottnest are almost typical *R. helvola*, but one from Leighton has the characteristics of *R. helvola citriniolor* Iredale 1935, a name introduced for the Western Australian variant.

MYASTAPONDA VITELLUS (Linne).

Cypraea vitellus Linne 1758. Syst. Nat. ed. 10, p. 721.

A dead shell of this species from Leighton, South Western Australia, measures 56 mm. in length.

EXOHALIOTIS CYCLOBATES (Peron).

Haliotis cyclobates Peron 1816. Voy. Decouv. Terres. Austr., 2, p. 80.

The type came from Kangaroo Island, South Australia, where the species is common. A number of worn, senile, though typical specimens from Murchison were forwarded for identification by the University of Western Australia. It is extraordinary to find this species at Murchison when it appears to be absent in the South-West.

CAMPANILE SYMBOLICUM Iredale.

Campanile symbolicum Iredale 1917, Proc. Mal. Soc. Lond., 12, p. 326.

There has been some dispute regarding the genotype of this genus. It seems almost certain that Fischer's words in the original descripiton, "Opercule typique (*C. laeve* Quoy et Gaimard, Australia)" leaves no doubt but that *C. laeve* was intended as genotype. Fisher follows this by remarking that the fossil species of the group are numerous in the Eocene and gives an example of the fossil species by quoting *G. giganteum*. I am inclined to agree with Wrigley, Proc. Mal. Soc. Lond., 24, p. 97, 1940, that the living Australian species is congeneric with the British Eocene fossils. *Campanile* has a considerable geological and geographical range. It is found in the Upper Cretaceous, Eocene, Oligocene, Miocene, in localities ranging from the West Coast of North America, South America, Europe, North Africa, India, East Indies, to Southern Australia.

It is probable that the large *Terebralia adelaidensis* Howchin and Cotton 1936 from the Lower Pliocene (Adelaidean) of South Australia should be placed in *Campanile* as the apertural features of the Northern Australian *Terebralia* (genotype *T. pallustris* Bruguière) appear to be different. *Campanile symbolicum* (not *C. laeve* Quoy et Gaimard 1834, which is preoccupied by *Cerithium laevis* Perry 1810) occurs as a raised beach subfossil on Yorke Peninsula. South Australian specimens measuring up to 150 mm. in length being found there. We have good series of Western Australian recent specimens from Fremantle, Albany, Hopetoun, Yallingup, King George Sound and Geraldton.

The shell is not uncommon alive at Garden Island and a large specimen from that locality, examined at the University of Western Australia measured 200 mm. in length and 70 mm. in width.

DYRASPIS DORREENSIS (Peron).

Conus dorreensis Peron 1807. Voy. Decouv. Terres Austr., 1, p. 120.

This distinctive cone shell was taken by students at Murchison, and a fine living specimen at Garden Island. I had previously recorded it as far south as Ellenbrook and Yallingup from dead specimens, under the name *Virroconus pontificalis.*

A new genus *Dyraspis* Iredale 1949, has since been introduced for this peculiar cone and the specific name *C. pontificalis* Lamarck 1810 is replaced by the earlier *C. dorreensis* Peron, described from Dorre Is.

MEGALATRACTUS ARUANUS (Linne).

Murex aruanus Linne 1758. Syst. Nat. ed. 10, p. 275.

Shells of this "largest living gastropod" are found at Cottesloe, Rottnest and Penguin Islands in South Western Australia. Hedley, in 1905, recorded it as far south as Exmouth Gulf and in a footnote mentions that a specimen of the egg case had been collected on Carnac Island, seven miles south-west of Fremantle. Specimens may be distinguished from the Northern ones by the less elevated spire, rounder outline of the spire and body-whorl, and also smaller size of the southern form.

CONCLUSION.

Preliminary studies strongly suggest that there is some marked tropical influence, probably a warm current washing the South Western Australian shores during at least part of the year. This theory is supported by the range of certain tropical species mentioned here which are found much further south than could be expected under normal conditions in this area.